

3RDWHALE STRATEGIC ANALYSIS

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Abstract

This essay provides a detailed strategic analysis of 3rdWhale, a Vancouver-based start-up in the sustainability sector, along with an analysis of the smartphone applications industry. Porter's five forces model is used to perform an industry analysis of the smartphone application industry and identify key success factors for application developers. Using the identified factors, 3rdWhale is compared to its indirect competitors to identify opportunities and threats and produce a range of strategies to capitalize on opportunities while mitigating and managing threats. The recommended strategy is selected by comparing requirements to implement each alternative with 3rdWhale's internal capabilities.

The author recommends that 3rdWhale maintain its up-front payment monetization model. The company should adopt a pull marketing strategy to reach the wider range of consumers on the edge of the sustainability segment. Finally, the author recommends that 3rdWhale increase the skill and autonomy of its development team by hiring more experienced software developers.

Keywords: smartphone; software; sustainability; strategy.

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Glossary

Analytics	Information and statistics gathered about application usage, usually by a third party software component and service.
CPM	Cost Per Mille – the cost per thousand views, or ‘impressions’, of an advertisement.
Feature phone	A cell phone that incorporates additional features such as a camera, digital audio player or web browser.
ISV	Independent Software Vendor
KSF	Key Success Factor
LBS	Location-Based Service
LOHAS	Lifestyles Of Health And Sustainability
MNN	Mother Nature Network
OEM	Original Equipment Manufacturer
OS	Operating System
Platform	Synonym for operating system
RSS	“Really Simple Syndication” – A data format that allows automated access to ‘stories’ on compatible internet sites.
SDK	Software Development Kit
Smartphone	A feature phone with the ability to run software from 3 rd party vendors or ISVs
WLAN	Wireless Local Area Network

1: Overview

This essay provides a detailed strategic analysis of 3rdWhale.com Media Inc. (“3rdWhale”). In late 2008, 3rdWhale launched a smartphone software application for the Apple iPhone. The company intends to launch similar applications for the Android and Blackberry smartphones in mid-2009. To date, 3rdWhale has seen some success in terms of application downloads but has not managed to build a significant revenue stream from the application. The purpose of this analysis is to examine the industry in which 3rdWhale operates, identify key success factors and provide recommendations on future strategy.

1.1 Smartphone Application Industry Overview

3rdWhale operates in the smartphone application industry. A smartphone is a battery powered electronic device that can make voice calls and run a variety of software applications. For the purposes of this report, the scope of the industry is limited to independent software vendor (ISV) applications that are installed on smartphones by the consumer or wireless carrier.

The smartphone application industry is generally not limited by geography. This is primarily because most smartphone applications are sold through online application marketplaces. As a result, smartphone application developers can effectively reach any consumer who has access to the internet.

It is difficult to estimate the size of the industry. However, Apple's experience with the iTunes App Store can provide some indication. In its first year of operation, 1.5-billion applications were downloaded from the App Store (Apple 2009). As the iTunes App Store has the largest number of applications amongst the application marketplaces, it is therefore likely that annual application downloads do not currently exceed 2-billion. Jeremy Liew at Lightspeed Venture Partners estimates that the ratio of paid downloads to free downloads is between 1:15 and 1:40 (Liew 2009). Assuming this estimate is accurate, between 48.8-million and 125-million of the downloads were paid applications. Ben Lorica at O'Reilly reports that the mean iPhone application price is \$2.65 (Lorica 2009). Therefore, revenue from paid applications can be estimated at \$129.32-million to \$331.25-million. It is important to note that this only revenue from up-front payment. Many applications developers may also derive significant revenue from in-application advertising.

Using quarterly smartphone handset sales data from Gartner, the author estimates that there are currently 274-million smartphone users worldwide. These users are distributed across six major smartphone operating systems or 'platforms': Symbian; Windows Mobile; Blackberry OS; iPhone OS; Android; and Linux. Symbian is currently the dominant platform with approximately 57% of all smartphone users.

The smartphone application industry is currently undergoing rapid growth. Over the last year, the total number of applications available across all of the application marketplaces has grown from close to zero to approximately 75-thousand. This represents approximately one application for every 3,600 smartphone users.

Smartphone handset's quarter over previous year's quarter growth has been positive since 2008. More importantly, mobile handset sales declined in Q1 2009 while smartphone handset sales increased. This indicates that smartphone handsets represent a growing percentage of overall handset sales.

As of July 2009, the industry structure appears to be closest to monopolistic competition (Chamberlin 1933). There are many small competitors, with no clear dominant players. Applications have at least some differentiation; however there are frequently many close substitutes for each application. Finally, there are few entry and exit barriers. In accordance with economic predictions for monopolistic competition, profits within the industry are generally low, or negative, for most competitors.

Industry competitors are using both low cost and differentiation strategies. There does not appear to be any clear correlation between preferred strategy and monetization model (up-front payment, or free and ad supported). Competitors with free applications and differentiation strategies generally attempt to maximize the amount they can charge for advertising within the application.

While the industry existed in a limited form prior to 2007, the majority of competitors have entered the industry over last year. 3rdWhale is one such entrant that focuses primarily on the sustainability-interested customer segment. This segment is generally referred to as the Lifestyles of Health and Sustainability (LOHAS) market.

1.1.1 Platform distribution

Smartphone users are spread across six major smartphone platforms. Consequently, it is important to have an understanding of the number of users and growth

trends for the major smartphone platforms. The number of active users can be estimated with smartphone sales data and some assumptions about the handset replacement rate.

The handset replacement-rate is the average time interval at which users purchase a new handset. For the purposes of this analysis, it is assumed that the replacement rate is approximately equal to the average length of a cell-phone contract. This assumption is supported by Vodafone UK's data indicating that only 20% of UK mobile phone users choose not to replace their handset at the end of their contract (Vodafone 2009). Further support is provided by J.D. Power and associates who state that the average reported length of cell-phone ownership in the US is 17.7 months (J.D. Power and Associates 2008) – which is less than the average US cell-phone contract length of 24-months. The replacement cycle may vary in other regions, particularly developing countries. However, it is assumed that, due to the high cost of smartphone handsets, usage in developing countries is low.

A brief survey of contract terms on wireless carrier websites reveals that the average contract length varies from 18 months in the UK to 24 months in the US and 36 months in Canada. Therefore, for the purposes of estimating user numbers, it is assumed that the average worldwide contract length is 24 months. Consequently, we use a 24-month rolling total of sales in order to estimate the number of active users on each platform.

Figure 1 (below) shows the estimated percentage of users on each platform as of the beginning of 2009, based on a 24-month rolling total of quarterly handset sales data reported by Gartner. As shown, Symbian is currently the dominant platform, with

approximately 57%, or 150,000 users. The next largest, in order of size, are Blackberry OS (13.35%), Windows Mobile (11.92%), Linux (8.8%) and iPhone OS (5.63%).

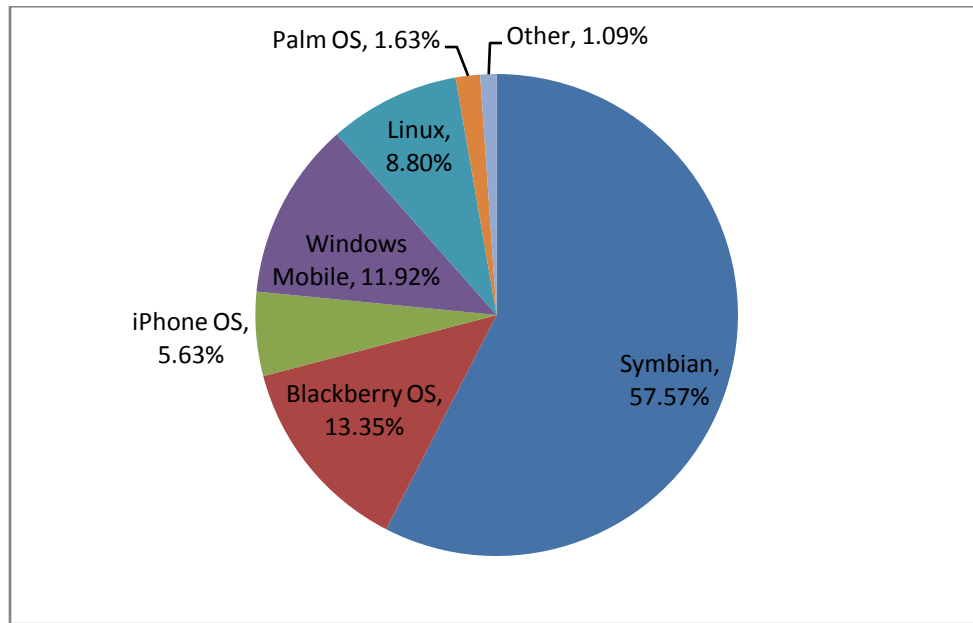


Figure 1 - Estimated Percentage of Users by Platform

While Symbian is currently the dominant operating system, platform growth is likely to influence the distribution of smartphone users over the next five years. Figure 2 (below) shows the market share for the top six operating systems from 2007 to 2008, as reported by Gartner. As shown, Symbian market share has been steadily decreasing while both Blackberry OS and iPhone OS market share has been increasing. Over the same period, both Linux and Windows Mobile market share has remained relatively constant.

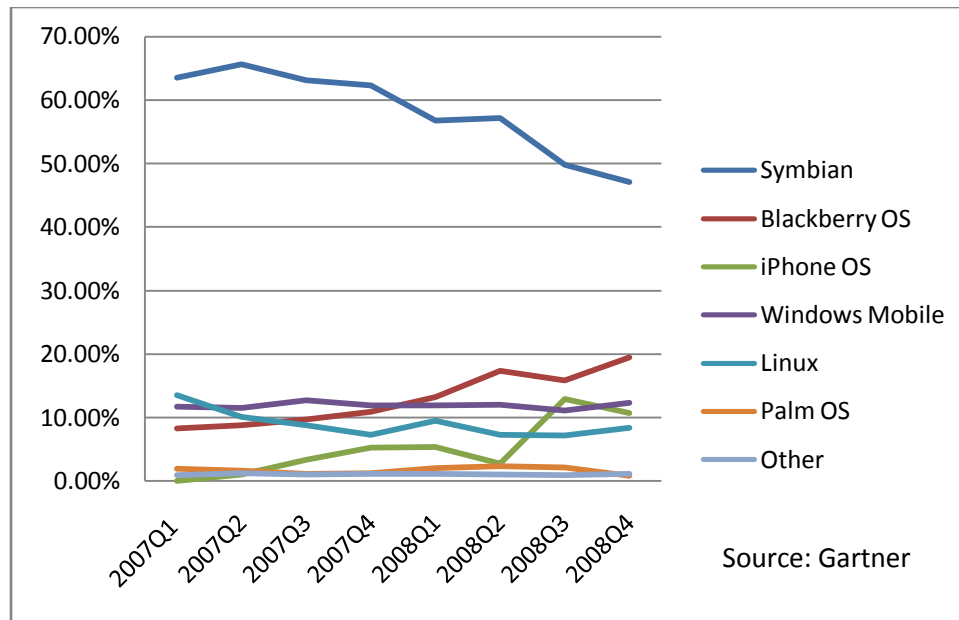


Figure 2 - Smartphone OS Market Share

Figure 3 (below) shows Strategy Analytics market share forecast for the major smartphone platforms. As shown, Symbian market share is expected to decline further, while Android and iPhone OS are expected to increase. iPhone is expected to achieve the second largest market share by FY2009 and expected to achieve the third largest market share by FY2012.

From an economics perspective, it seems likely that one of the third-party smartphone operating systems will eventually gain a dominant share of the market. This is because smartphone operating systems likely benefit from network effects, much like PC operating systems. Application developers are generally attracted to the platform with the largest amount of users. At the same time, users generally want the platform with the widest variety of high-quality applications. If one of the smartphone platforms reaches critical mass, it will likely become dominant in the marketplace.

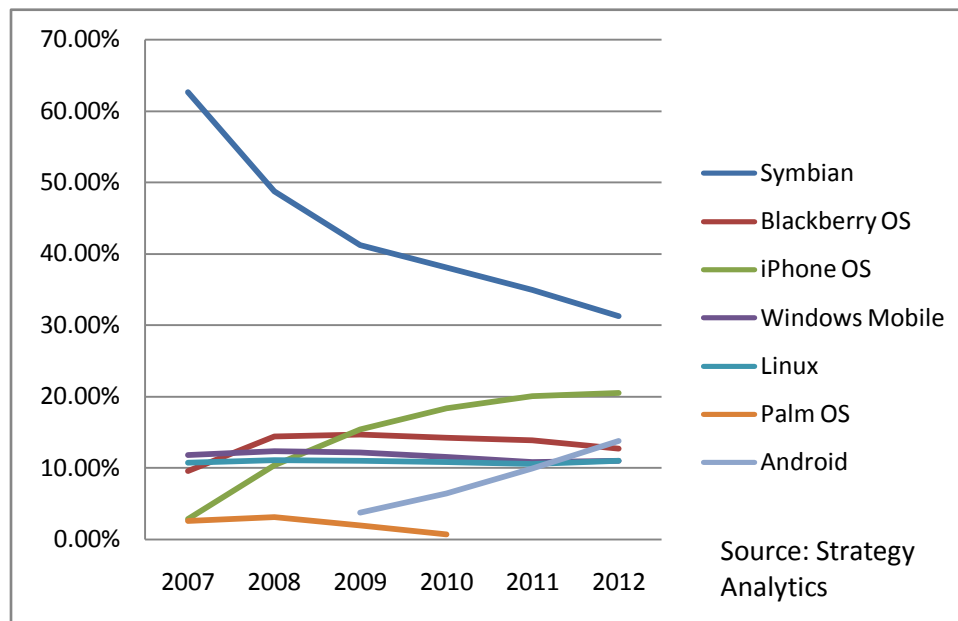


Figure 3 - Forecast Smartphone OS Market Share

Third-party operating systems have an advantage over proprietary platforms in reaching critical mass as they can be deployed on a wider range of handsets. Of the three major third-party smartphone operating systems (Android, Symbian and Windows Mobile), both Symbian and Windows Mobile are restricted by legacy design and have struggled to match the performance and ease-of-use of modern operating systems such as iPhone OS and Android. Additionally, Microsoft charges royalties for each device using Windows Mobile whereas both Symbian and Android are royalty free. Therefore, Android would appear to be most likely to reach critical mass first and dominate the smartphone OS market in the long term.

Strategy Analytics latest research report supports this argument, predicting that Android market share will increase by 900% in 2009, compared to a relatively modest 89% growth for the next fastest growing platform - iPhone OS (Strategy Analytics 2009).

Android's high-predicted growth is due mainly to the fact that several handset manufacturers are planning to release Android based smartphones in 2009.

1.2 Company Overview

3rdWhale develops and sells an iPhone location based service (LBS) application to help consumers find green and sustainable businesses in their local area. A diagram of the system is shown below in Figure 4. When the application is launched, the user's location is determined using either GPS or a postal-code specified by the user. The user then selects a business type and a search distance and then clicks 'search'. The search request is sent via a wireless access point or carrier data network to an internet server which replies with a list of businesses matching the search criteria. Finally, the mobile software displays the businesses on a map along with relevant information such as the business description, rating and reviews.

The application also includes other functionality such as the ability to view sustainability news articles and tips/solutions. Partner organizations EcoMatters and Mother Nature Network (MNN) provide the news articles and Creative Citizen provides the sustainability tips/solutions. Partnering with other sustainability organizations is a key element of 3rdWhale's strategy as it allows the company to focus on mobile development rather than content creation.

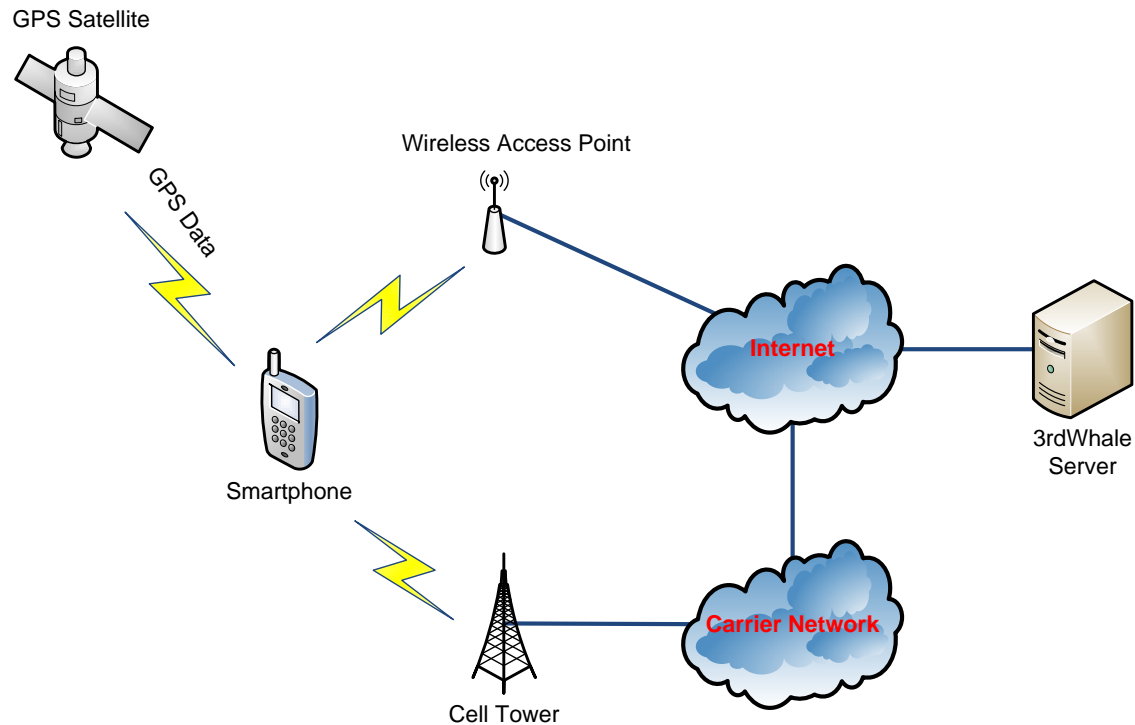


Figure 4 - 3rdWhale LBS Application

1.2.1 History

3rdWhale was launched on the 22nd of April, 2008 by Dr Boyd Cohen. Prior to creation of the company, Boyd was the President of Visible Strategies, a Vancouver-based company that develops software to help businesses plan and visualize their sustainability strategy. Boyd is also an assistant professor in the business faculty at Simon Fraser University, specializing in sustainability and new ventures.

The company's initial focus was development of an online directory of green and sustainable businesses. However, in late 2008, 3rdWhale changed its focus to development of an iPhone LBS application. The iPhone was chosen as the initial target platform because at the time it was the only platform that had an effective distribution channel – the iTunes App Store.

Development was initially outsourced to iApps Software Solutions Pvt Ltd., a software services organization located in Bangalore India. After a few months, development was switched to Innolance Inc., another software services organization based in Indiana, USA. Innolance performed the project management from the US but outsourced the coding of the application to Qburst, a partner company located in Trivandrum, India.

The first publically available version of the iPhone application was released in January 2009 as a free download from the iTunes App Store. This version of the application included only the LBS functionality, allowing users to find sustainable businesses in their area. The first version of the application was downloaded approximately 1,000 times in the first 40 days after its release.

In late 2008, Boyd met Ronald Williams (“Ron”), the owner of Happy Frog – a Vancouver based company that was already operating an online directory of green and sustainable businesses. Shortly afterwards, Boyd and Ron decided to merge the two companies in order to leverage the combined benefits of Happy Frog’s business directory and 3rdWhale’s mobile software. The merger was completed on the 1st of January 2009, with the resulting company being called 3rdWhale.com Media, Inc.

In early 2009, Boyd and Ron made the decision to focus on mobile software development. Subsequently, development of the software application was brought in-house. It was anticipated that in-house development would provide more direct control of the development process as well as address many of the quality issues that were present in the software. Additionally, Boyd and Ron believed that in-house development would be cheaper than the previous outsourcing arrangement.

In conjunction with the decision to focus on software development, 3rdWhale also decided to bring their application to the newly available Android platform. In May 2009, the company further decided to expand development to include the Blackberry platform. By making the application available on several platforms, the company hoped to dramatically expand its addressable market.

On the 25th of June 2009, 3rdWhale released an updated version of the iPhone application on the iTunes App Store for a price of \$1.99. Prior to the release of the new version, there had been approximately 4,000 downloads of the application. In the first week after release, there was approximately 200 purchases however, since then downloads of the new applications have fallen to almost zero. To date, approximately 1,000 copies of the paid application have been downloaded. 3rdWhale estimates that approximately half of these downloads were new users with the other half being existing users upgrading from older versions of the application.

More recently, 3rdWhale has entered into discussions with GenGreen, another online sustainable business directory operator, about merging databases. GenGreen's database currently holds approximately 60,000 businesses, all of which are located in North America. The eventual goal of the partnership would be for GenGreen to manage the business database. This would allow 3rdWhale to focus on mobile development. Additionally, it is anticipated that the size of the business database would provide a significant barrier to entry for any new businesses wishing to target the sustainability LBS niche.

In July 2009, the company received a NRC small grant for approximately \$50,000CAD. The funds are earmarked for further development of the iPhone,

Blackberry and Android applications. Additionally, some of the funds will be used for enhancement of the server application that provides access to business listings, news and sustainability tips/solutions.

1.2.2 Success to Date

As of July 2009, 3rdWhale had approximately 26,000 businesses in its database. The company estimates that the largest online directories of green and sustainable businesses are SustainLane and GenGreen with approximately 23,000 and 60,000 businesses respectively. This puts the company in 2nd place in number of business listings.

To date, there have been approximately 5,000 downloads of the iPhone application. Approximately 4,000 of these were downloads of the free application, 500 were purchases of the paid version of the application and 500 were upgrades from the free version. As users are not charged for upgrades, revenue to date is approximately \$1,000 USD.

Data from Pinch Media, an analytics engine built into the software, indicates that since the launch of the paid version, 512 users with an active internet connection have used the application. Over the 30-day period ending July 17, 2009 there has been an average of 27.27 unique users per day, with the majority located in North America. This appears to indicate that the majority of users do not return to the application beyond an initial 1-2 uses.

1.2.3 Current Strategy

In terms of Porter's Generic strategies (Porter 1980), 3rdWhale currently employs a differentiation (focus) strategy. The company aims to differentiate its product primarily by providing high level of software quality and developing for a larger range of smartphone platforms than comparable LBS applications. 3rdWhale's specific focus is on serving the mobile needs of LOHAS consumers.

3rdWhale is also focusing on building partnerships with leading organizations in the sustainability market. By doing so, the company hopes to leverage potential synergies in core competencies, marketing and user communities. This makes the business model similar to that of Dell or Toyota, where a combination of low vertical integration and close relationships with suppliers allow the partners to focus on their core competencies.

1.2.4 Strategic Fit

Figure 5 (below) shows a map of 3rdWhale's current strategic fit. As indicated, the company's fit with its differentiation strategy is currently mixed. The company has high fit in terms of R&D expenditure, risk profile and capital structure and low fit in terms of decision making and marketing. In order to improve its strategic fit, 3rdWhale would have to move to a pull marketing strategy, increase the skill and autonomy of its workforce and increase its level of decentralization.

In terms of product strategy, 3rdWhale was the first mobile software company to target the sustainability LBS niche. However, the company's software is very similar to other LBS applications, particularly the 'Urban Spoon' application for finding nearby

restaurants. As a result, from a product perspective the company does not display a high degree of innovation.

Generic Strategy	Cost Based Low cost/Adequate Quality						Differentiation High Quality/Adequate Cost					
												
	Score	1	2	3	4	5	6	7	8	9	10	
Product Strategy	Rapid Follower								★			Innovator
R&D Expenses	Low R&D										★	High R&D
Structure	Centralized							★				Decentralized
Decision Making	Low Autonomy							★				Autonomy
Manufacturing	Economies of Scale											Economies of Scope/Flexible
Labour	Mass Production							★				Highly Skilled/Flexible
Marketing	Comparative Push	★										High Cost Pioneering/Pull
Risk Profile	Low-Risk										★	High-Risk
Capital Structure	Leveraged										★	Conservative

Figure 5 - 3rdWhale Strategic Fit

Compared to other mobile software development organizations, the company spends more on product R&D. Anecdotally, the majority of smartphone software developers are individuals whose primary occupation is not smartphone software development. 3rdWhale currently employs a team of three junior software developers and one intermediate to senior developer. The combined cost of the four developers is likely higher than R&D costs of other application developers.

Figure 6 (below) shows 3rdWhale's current organization chart. As shown, 3rdWhale employs a somewhat decentralized organizational structure. The CEO and

President are at first tier and make the majority of business and strategy decisions in consultation with the VP of technology. The second tier consists of the VP of technology and a social media strategist who have decision-making authority in their respective areas of software development and social media marketing. The software team, reporting to the VP of technology, consists of three junior software developers and one senior software developer. These developers have little decision-making authority outside of routine programming decisions.

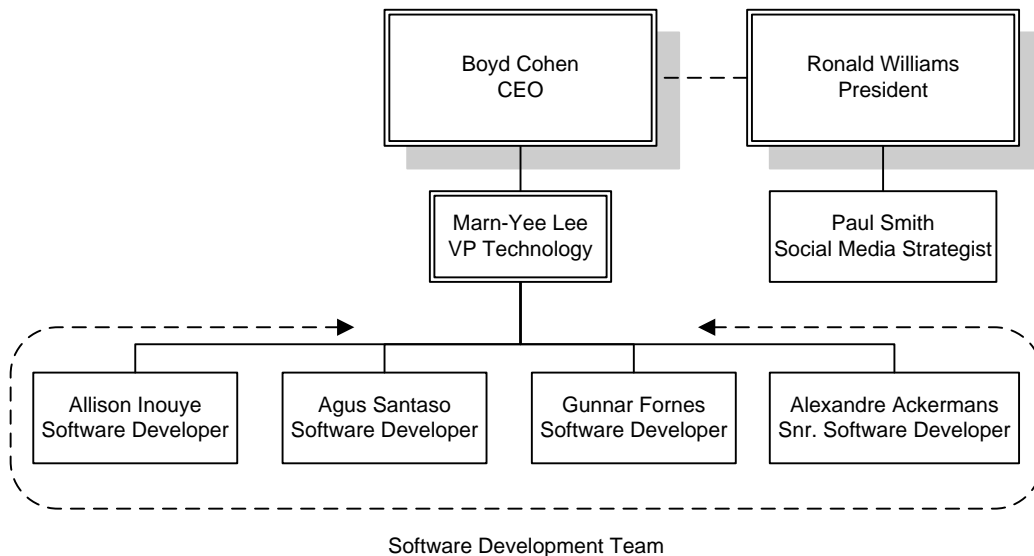


Figure 6 - 3rdWhale Organization Chart

Due to the nature of software development, the company's labour force is necessarily skilled. However, all of the junior software developers are either students or recent graduates and are therefore relatively unskilled. In July 2009, the company hired an intermediate-senior software developer on a part time basis (approximately 12 hours per week) which has increased the overall skill level of the team.

3rdWhale employs a push marketing strategy. To date, marketing efforts have made heavy use of social media such as Blogging, Twitter and Facebook to promote the application to sustainability-interested end-users. In addition to social media, 3rdWhale has attempted to utilize its partnerships with other sustainable organizations to market to a wider user-base.

The company operates in a high-risk environment. While technological risk is relatively small, market risk is high. Consumers' application purchasing behaviour is extremely difficult to predict and as a result, many high-quality applications are ultimately unsuccessful in achieving significant sales or downloads.

Finally, as a start up organization, 3rdWhale is currently completely equity funded. Consequently, the company has an extremely conservative financial structure. It is unlikely that this will change in the near future as the company has little collateral or revenue with which to obtain significant debt funding.

1.3 Problem Identification

At the time of writing, 3rdWhale's primary problem is that it has low sales combined with a comparatively small user base. This makes it difficult to grow revenue through either application sales or advertising. As a result, there is little opportunity to derive a sufficient revenue stream with which to grow or sustain the company.

Given that that 3rdWhale has few competitors, there are several possibilities for why the company's differentiation strategy is failing. The first is that the number of smartphone (at this stage iPhone) users who are interested in sustainability is too small to sustain a dedicated business. The second possibility is that the application does not have

enough value to stimulate customer interest. The third possibility is that downloads are negatively impacted by the application's poor rating on the iTunes App Store. The poor rating appears to be the result of software quality issues combined with a small business directory that limits the number of matches in each city. The software quality issues are mainly the result of initial use of two different outsourcing companies with little expertise in mobile development.

3rdWhale also has several problems with its strategic fit. The first is that the software development team is very junior. As a result, they are unlikely to produce a high level of quality or innovation that would set 3rdWhale's application apart from its competitors or stimulate a large amount of customer interest. The skill-level of the development team necessarily results in lower level of decentralization as it is risky to give junior developers a large amount of autonomy and decision making power. Therefore, even if the team has a high degree of creativity, they are constrained in how they can express this. Finally, the company uses a push marketing strategy – targeting the core sustainability market that has a known need to identify sustainable businesses and consume sustainability-related content. A successful differentiation strategy will most likely require a pull marketing strategy where potential users need to be educated about the innovative benefits of the software.

Finally, there is significant threat of new entrants into the sustainability niche. 3rdWhale currently has no direct competitors in this market. However, several organizations have announced plans to release sustainability targeted iPhone applications in the near future. The new entrant of most concern is 'EcoHero', primarily because it appears to be well funded and has significant overlapping functionality with 3rdWhale's

application. However, it is important to note that EcoHero does not appear to be including LBS functionality in its application.

1.4 Summary

This chapter has provided a brief overview of the smartphone applications industry, 3rdWhale and some of the problems that 3rdWhale faces in the near term. The next chapter provides a detailed external analysis including an industry analysis, identification of competitive advantages and some potential strategic options. Chapter three examines 3rdWhale's internal capabilities and chapter four provides final recommendations along with a proposed timeline for implementation.

2: External Analysis

This chapter provides a detailed analysis of the smartphone application industry. Identified key success factors are used to analyze 3rdWhale's position compared to its current and potential competitors in the sustainability niche. Finally, this chapter details potential opportunities and threats and presents a range of strategic alternatives to address these.

2.1 Global Smartphone Application Industry Analysis

This section provides a detailed analysis of the smartphone application industry in order to identify key success factors (KSFs). A key success factor is a factor that, if possessed or achieved, would make an organization successful in the industry. Therefore, organizations that possess many key success factors are likely to be stronger competitors.

The method used for the industry analysis is Porter's five forces (Porter 1980). The five forces include: threat of new entrants; power of suppliers; power of buyers; threat of substitutes; and rivalry amongst existing competitors. These forces affect profitability in the industry by affecting competitors' ability to charge high prices for their products or forcing competitors to improve product quality. The five forces analysis is an effective tool to comprehensively analyze the industry and identify key success factors.

Figure 7 (below) provides a brief synopsis of the strength of the five forces for the smartphone applications industry. The strength of each force is indicated in brackets next to its name. The main factors that influence the magnitude of each force are identified using a '+' for factors that increase the force and a '-' for factors that decrease the power.

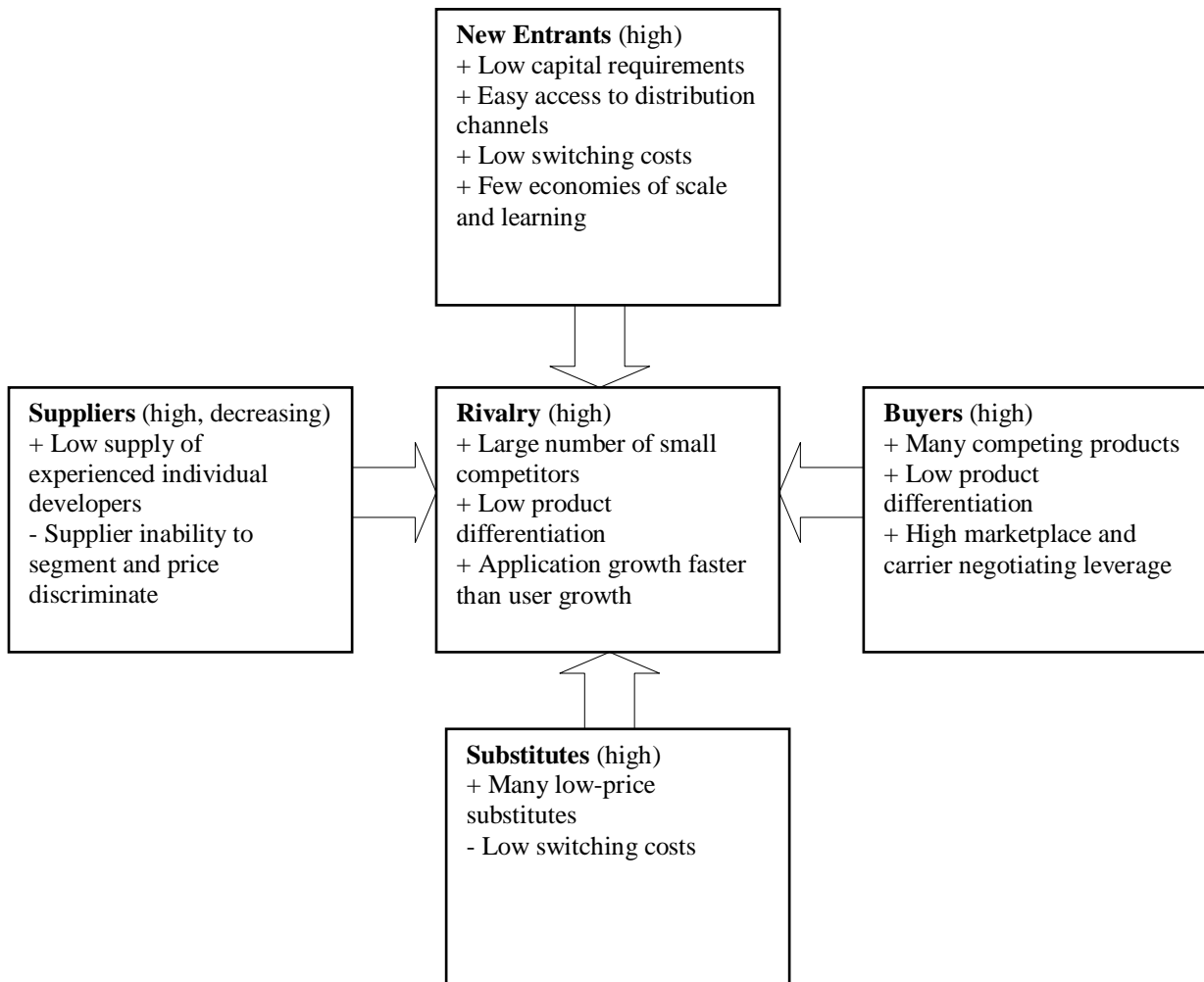


Figure 7 - Smartphone Application Industry Forces

2.1.1 Threat of Entry (high)

Porter defines the threat of entry as the threat that external organizations will enter the industry (Porter, The Five Competitive Forces That Shape Strategy 2008). The strength of this force depends on a combination of barriers to entry and expected

retaliation from industry incumbents. The threat of entry in the wireless application industry is high due to a combination of few barriers to entry and little credible threat of retaliation from incumbents.

Barriers to entry are low, primarily because the industry has low capital requirements and new entrants have equal access to distribution channels. Organizations need only invest in a computer system, the appropriate software development kit (SDK) for the platform and a smartphone handset in order to begin development. Most applications are sold through application marketplaces which accept application submissions from any organization that meets their submission criteria.

While incumbents can do little to influence capital requirements and distribution channels, there are some factors that could increase barriers to entry. The first is supply side economies of scale. Larger organizations can afford to employ specialists such as user interface designers, graphic artists and programmers. In most cases, this has a positive effect on product quality, lowers time to market and reduces the number of software defects.

The second factor is that some applications may have network effects. For example, LBS applications are more valuable to the end-user if they have a large number of business listings and more valuable to businesses if the application has a large number of users. As a result, LBS applications that reach critical mass become the primary choice for new users and new businesses.

The third factor is learning effects. Incumbents can create best practices based on experience gained developing applications. Additionally, data gathered through

application analytics can provide valuable insight into user trends and application preferences.

The final factor is switching costs. Application switching costs can be increased by allowing the user to customize the application, automated customization or a large amount of data entry by the user. Some applications already have high switching costs due to data entry such as task list applications where the user has to enter all of their tasks. Switching to a different task list application would be time consuming as the user would need to re-enter all of their tasks in the new application.

Expected retaliation is low mainly because the even though industry growth is slow, the majority of incumbents are relatively new and thus don't have substantial resources with which to fight new entrants. It may be argued that smartphone user growth is high, however application growth is higher. Figure 8 (below) shows the estimated user to application ratio for the iPhone. The user estimate makes the assumption that user growth has been linear since the launch of the iTunes App Store. This assumption is supported by Gartner's sales figures that show that quarterly sales for the last 2-quarters were relatively constant at close to 4-million, with slightly higher quarterly sales in 2008Q3 of 4.7-million. As shown, the user to application ratio has been steadily declining over the last year but appears to be stabilizing at approximately 364 users per application.

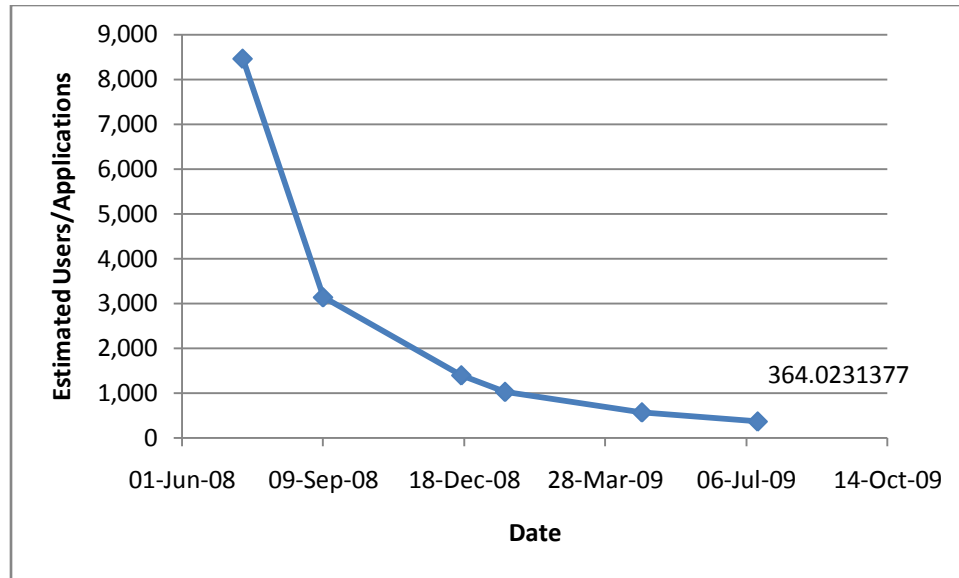


Figure 8 - iPhone Estimated User to Application Ratio

In some market segments, incumbents may be committed to holding market share as their applications are part of a larger service offering that benefits from the application's existence. Such incumbents may retaliate to entry by cutting prices. As a result, new entrants may avoid entering market where such incumbents compete.

2.1.1.1 Key Success Factors

Key success factors identified in this section include: supply side economies of scale; network effects; learning effects and switching costs. Achieving supply-side economies of scale is a key success factor because it increases new entrants' up-front costs as they will have to match the incumbent's specialized team in order to produce high quality applications or achieve low costs. Achieving network effects is a key success factor as new entrants will require much higher application quality, much lower application cost in order to induce users to switch away from the incumbent's application. Learning effects are a key success factor as new entrants will likely not have the

understanding of end-users required to achieve superior application quality or lower development costs. Finally, switching costs are a key success factor because users are less likely to switch to a new entrant's applications if it involves significant time or monetary cost. Strategies that obtain one or a combination of these factors are likely to increase barriers to entry, reducing competition in the organization's target market.

2.1.2 Power of Suppliers (high, decreasing)

Porter defines the power of suppliers as the ability of suppliers to “capture more of the value for themselves by charging higher prices, limiting quality or services, or shifting costs to industry participants” (Porter, *The Five Competitive Forces That Shape Strategy* 2008). Supplier power is influenced by wide range of factors including supplier concentration, degree of differentiation and potential substitutes. Suppliers to the smartphone application industry include: computer manufacturers; SDK providers; handset vendors; and programmers. If the competitor produces an application that is part of a larger service offering, hosting providers can also be a supplier. While power varies between suppliers, overall supplier power is high but decreasing. This is mainly the result of high but decreasing power of programmers, whose salaries make up the majority of application development costs.

Computer manufacturers, handset vendors and hosting providers have low bargaining power because they cannot effectively segment smartphone application developers. Customer segmentation allows suppliers to charge different prices based on a customer group's willingness to pay, otherwise known as price discrimination. Because the above mentioned suppliers are unable to engage in segmentation, application developers benefit from price competition in the larger consumer market segment.

SDK providers have low power because the SDK is usually made by the platform developer. Smartphone platforms benefit from network effects. Application developers prefer to target platforms with a large number of users and users prefer to use platforms with a large number of applications. Therefore they have a strong incentive to make SDKs cheap or freely available in order to attract a large number of developers to their platform and thus reach critical mass.

Programmers initially had high power because there were few programmers with the required skills and experience to develop smartphone applications. For example, in November 2008, Raven Zachary reported that the going rate for iPhone developers was an exorbitant \$125/hour (Zachary 2008). However, high hourly rates have attracted many programmers to the industry. This has the result of reducing programmers' bargaining power over time. For example, as of July 2009, 3rdWhale is able to pay \$20/hour for junior programmers with some smartphone experience.

2.1.3 Power of Buyers (high)

Porter defines buyer power as the inverse of supplier power - buyers are powerful if they are able to demand lower prices or force industry participants to increase their quality (Porter, *The Five Competitive Forces That Shape Strategy* 2008). Buyer power results from a combination of negotiating leverage and price sensitivity. There are several different buyers of smartphone applications including: end-users; application marketplaces; wireless carriers; and advertisers. Overall, the strength of these buyers is high.

The negotiating leverage of all buyers is increased by the relatively low level of application differentiation. While each application is unique, competing applications

have similar functionality. This is primarily due to reduced design options resulting from limited smartphone user interfaces and screen size combined with the limitations of the native SDK APIs.

Buyer negotiating leverage is further increased on platforms with a large number of applications. This is because on these platforms, there is generally a high degree of competition for in each application category. For example, Table 1 (below) shows the range of task list applications available for the iPhone. As shown, there are currently fifteen task lists applications available, with prices ranging from free to \$9.99 and a lower than average mean price of \$2.13.

Application Name	Publisher	Price	Rating	Ratings
Todo	Appigo	\$9.99	3.5	2,799
Nubi Do	Gennubi	\$5.99	3.5	71
Toodledo	Toodledo	\$3.99	3.5	1,284
To Do's	AustinBull Software	Free	3.0	31,185
To-Do Lists 2	Tapku	\$0.99	3.0	53
Organizer To Do List	Yadahome.com LLC	\$0.99	3.0	29
To-Do's	Brfos Studios	\$0.99	3.0	210
Eco.To.Do	Wadogo	\$1.99	3.0	7
Do.it	Magoaten	\$0.99	3.0	72
TouchTodo	Chen's Photography & Software	\$1.99	3.0	56
To-Do List	Concrete Software	\$2.99	2.5	709
ToDo	Catalystwo Limited	Free	2.5	173
To Do	Erica Sadun	Free	2.5	7,594
Remember The Milk	Remember The Milk Pty Ltd	Free	2.5	11,853
What Do I Need To-Do?	KeaneAndAble	\$0.99	2.0	1

Table 1 - iTunes App Store Task List Applications

2.1.3.1 End-Users

2.1.3.1.1 Purchasing Behavior

In terms of purchasing behavior, the most important information is how many free and paid applications the average user downloads and how much is spent on these applications. None of the major marketplaces release data on how many paid applications are purchased or the amount of revenue generated from application purchases. However, based on iPhone user and application download statistics, the average number of free and paid application downloads per user can be estimated using the following reasoning.

As of the 31st of March 2009 there were approximately 18-million iPhone users. On the 23rd of April 2009, Apple announced that there had been 1-billion application

downloads from the iTunes App Store (Apple 2009). Jeremy Liew at Lightspeed Venture Partners estimates that the ratio of paid downloads to free downloads is between 1:15 and 1:40 (Liew 2009). Therefore, in the first 9 months of operation, iPhone users downloaded approximately 24-million to 63-million paid applications from the iTunes App Store. This corresponds to an average of 1.3 to 3.5 paid applications and 52 to 54.4 free applications per user.

Ben Lorica at O'Reilly reports that the mean iPhone application price is \$2.65 with a mode of \$1.99 (Lorica 2009). As a result, the average iPhone user likely spends between \$3.58 and \$9.28 on applications. This is likely a small amount compared to the disposable income of the average smartphone owner.

2.1.3.1.2 Application usage

When analyzing application usage, most application developers are interested in how much time users spend using an application, commonly referred to application 'stickiness'. Again, little information is available for smartphone applications in general. However, due to the popularity of analytics in iPhone applications, some data is available about iPhone application stickiness. The most recent publically available data comes from Pinch Analytics' App Store secrets presentation on the 19th of February 2009 (Pinch Media 2009).

Figure 9 (below) shows the percentage of returning users for both free and paid applications. After 90-days, the percentage of users returning to free applications drops to approximately 1%. Users returning to paid applications drops to approximately 0.4%. One hypothesis for the sharp drop in returning users is that the majority of applications have limited content. There is little reason for users to revisit these applications after

exhausting the available content. Free applications, such as RSS readers, may be more likely to obtain extra content from online sources explaining their slightly lower attrition rate.

By application category, sports applications have the lowest drop-off rate and have peaks in the number of returning users approximately every seven days after the initial download. This most likely reflects the weekly schedules of most sporting teams. Games have the next lowest attrition rate; however, by day sixteen they are the second worst. Lifestyle and Entertainment applications have similar attrition curves and have the lowest long-run attrition. Utilities are the worst performers with the fastest drop off and lowest long-run usage.

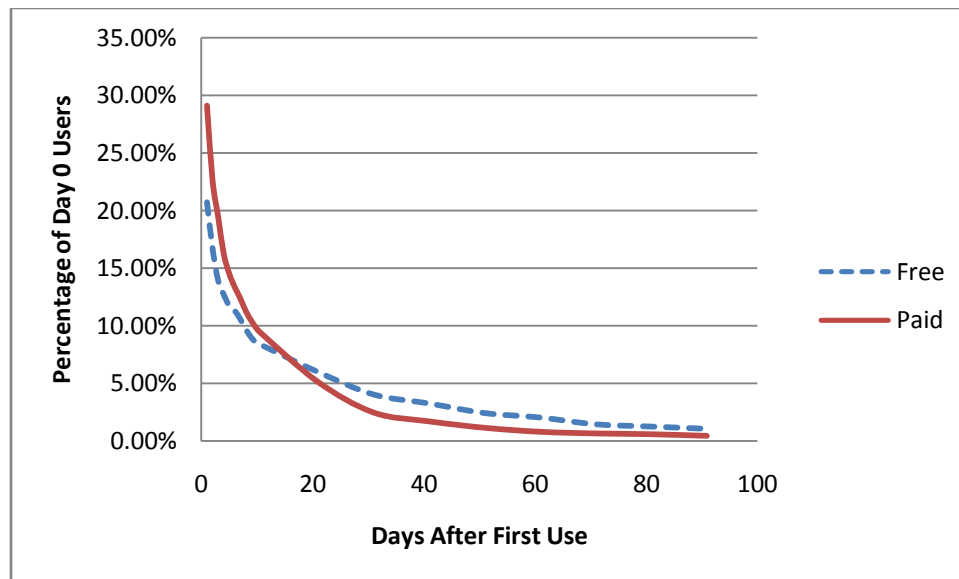


Figure 9 - Percentage of Free and Paid Application Returning Users (Pinch Media 2009)

Figure 10 (below) shows the average session time for free and paid applications from zero to sixty days after download. As shown, users spend more time with paid applications than free applications. Usage of both application types drops to 4-5 minutes

per session, 60-days after download. This leads to another hypothesis as to why paid application attrition is slightly higher than that of free applications after 20-days: Because users spend more time with paid applications, they may exhaust the content on these applications faster than with free applications.

Figure 11 (below) shows the average session time from zero to sixty days after the initial download by application category. As indicated, games have the longest session time, stabilising at approximately seven minutes after 60 days. The next best session times are lifestyle applications (4.3 minutes after 60 days) followed by entertainment and sports applications (3.7 minutes after 60 days) and finally utilities (2.9 minutes after 60 days).

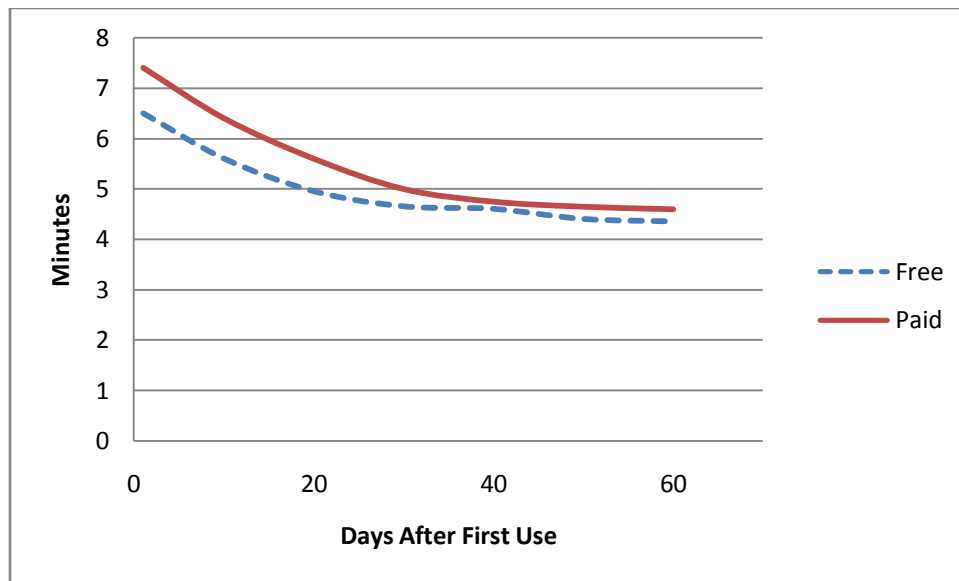


Figure 10 - Free and Paid Application Session Time (Pinch Media 2009)

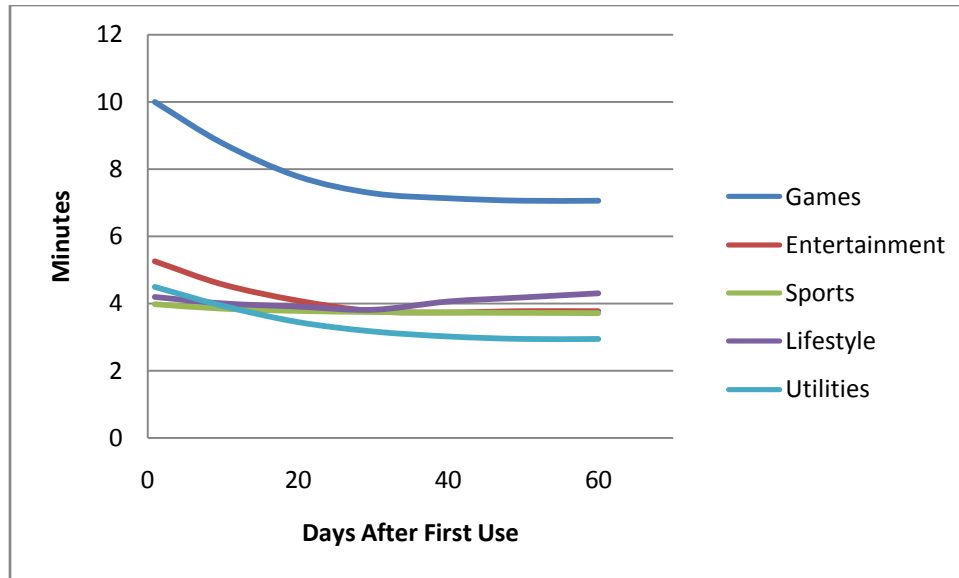


Figure 11 - Session Time by Application Category (Pinch Media 2009)

The usage data from Pinch Media was used to perform a 5,000-user Monte-Carlo simulation of free application usage. The simulation makes the following assumptions about user behaviour:

- a) The average user uses the application one time per day, with a standard deviation of 0.5 (66% of users use the application 1-3 times every 2 days).
- b) Application uses are randomly distributed throughout the usage period.
- c) All users will use the application at least once when they first download it.

The results of the simulation are shown in Figure 12 (below). The simulation results indicate that average total usage of a free application is 53.1 minutes with a standard deviation of 228.7 minutes and a 95% confidence interval of 6.4 minutes. This indicates that 66% of users will use the application for less than 282 minutes.

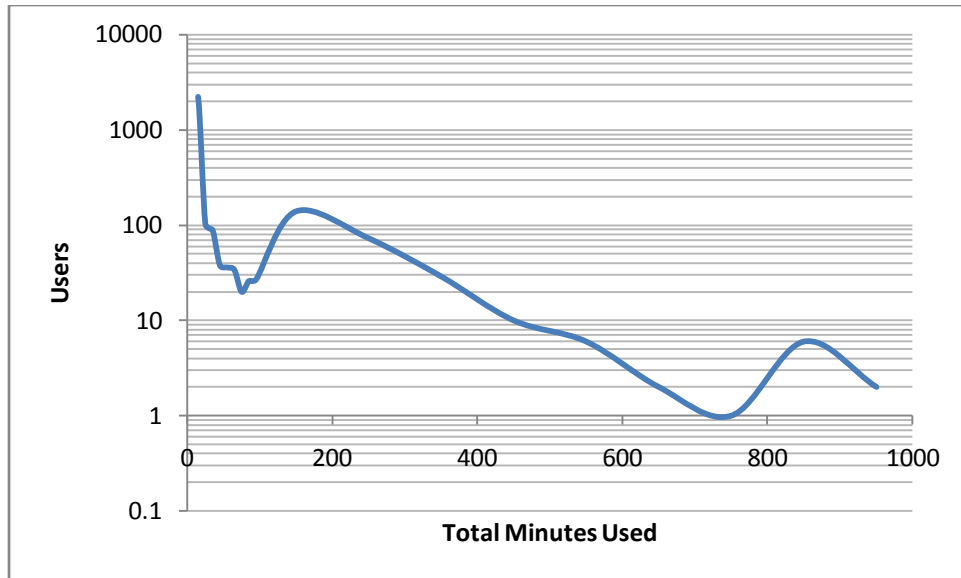


Figure 12 - Monte Carlo Usage Simulation

2.1.3.1.3 Bargaining Power

Apart from a high degree of application competition, end-users have high negotiating leverage because most applications have few intrinsic switching costs. For example, the cost to switch from one game to another is low as most smartphone games are, by design, relatively simple. Application marketplaces also reduce switching costs by reducing the end-user's search costs. Such marketplaces allow users to quickly find and compare a range of applications that may meet their needs. High availability of low cost of application SDKs does allow users to credibly threaten backward integration. However, this is relatively rare and likely only an issue in market segments that include a large number of skilled programmers. Additionally, the time and effort required to develop an application is likely to dissuade all but the most determined users.

End users have low price sensitivity as application costs are generally small compared to their overall income. The high cost of smartphone handsets and associated data plans suggests that the majority of smartphone users have higher incomes. This is

supported by two recent iPhone user surveys. In 2008, Neilson reported that 63% of iPhone owners earned greater than \$75,000 per year (Neilson 2008). 2009 statistics from comScore indicate that 54% of iPhone owners earned greater than \$75,000 per year and 35% of owners earned greater than \$100,000 per year (comScore 2009). However, the worldwide recession resulting from the 2008 financial crisis may reduce end-users' discretionary spending, resulting in users becoming more price sensitive.

In some cases, the application type has a significant impact on the end user. To use the task list example again, a poor quality task-list application that loses tasks will likely have a high impact on the user. When purchasing such applications, end users are likely to be less price-sensitive as the impact of a poor quality application is high.

2.1.3.2 Application Marketplaces

Table 2 (below) provides information about the marketplaces, applications and estimated users for the major smartphone platforms. Note that Windows Mobile and Linux do not currently have primary marketplaces. As shown in the table, iPhone OS has the largest number of applications. This is likely due to the age of its marketplace combined with an established user-base. Android has the next largest number of applications and the smallest user base, possibly because of the age of the marketplace combined with the platform's expected high growth in users. Finally, Blackberry OS and Symbian have the fewest applications, despite their large number of estimated users. Most likely this is because their primary marketplaces are relatively new and pre-existing distribution channels were highly fragmented.

Platform	Primary Marketplace	Launch	Applications (As of July 09)	Estimated Users
iPhone OS	iTunes App Store	July 2008	>50,000 ¹	18.7-million
Android	Android Market	22 October 2008 ²	4,715 ³	> 1-million
Blackberry OS	Blackberry App World	1 April 2009 ⁴	2,000 ⁵	40.1-million
Symbian	Nokia Ovi Store	26 May 2009 ⁶	2,251 ⁷	> 150-million

Table 2 – Platform Marketplaces, Applications and Users

Application marketplaces have high negotiating leverage primarily because of their role as an intermediate buyer. Marketplaces can access and influence a large number of end-users. Marketplaces features such as ratings and top application listings can have a significant effect on user awareness applications as well as perception of application quality. Additionally, on some platforms application marketplaces have exclusive access to the end-users. For example, the only official place to purchase applications for the Apple iPhone is from the iTunes App Store.

Application marketplaces gain additional negotiating leverage because they ‘purchase’ large numbers of applications from a wide range of suppliers. This reduces the impact of any single application developer choosing not to make their applications

¹ As of July 6, 2009 (Miller and Harrison 2009)

² (Android Market: Now available for users 2008)

³ As of July 7, 2009 (androlib.com 2009)

⁴ (Mies 2009)

⁵ As of July 6, 2009 (Miller and Harrison 2009)

⁶ (cellular-news 2009)

⁷ As of July 12, 2009 (Nokia 2009)

available via the marketplace. In most cases, there are many competitors who are willing to fill the associated gap.

Applications marketplaces have low price sensitivity because they do not pay up-front for applications. Table 3 (below) provides details of the primary marketplaces for five of the six major smartphone platforms. Note that there is no primary marketplace for the Linux platform as Linux really refers to a collection of platforms that all share the Linux Kernel. Android could be considered a Linux platform but it is dealt with separately because of its success relative to other Linux-based platforms.

As shown, the marketplaces are able to leverage their bargaining power to charge developers a percentage of application sales revenue. In some cases application marketplaces are also able to charge developers for the privilege of making the application available on the marketplace. The overall effect of this model is that all of the business risk is shifted to the application developer while the marketplace is able to share in the rewards from successful applications. Charging a percentage of revenues and not profits also means that the marketplaces benefit from sales even if the application developer is unprofitable overall.

Marketplace	Fees	Commission	App Approval Required
iTunes App Store	None	30%	Yes – time varies
Android Market	\$25 Registration ⁸	30% ⁹	No
Blackberry App World	\$200 for 10 applications	20% ¹⁰	8-10 days ¹¹
Nokia Ovi Store	€50 Registration	30% ¹²	No
Windows Mobile Marketplace	\$99 Annually for 5 applications ¹³	30%	Yes

Table 3 - Application Marketplace Fees and Commission

2.1.3.3 Wireless Carriers

Wireless carriers have high negotiating leverage because they have the ability to purchase a large number of applications for each developer. This is because carriers generally purchase applications to pre-install on a large number of smartphones prior to sale to the end user. As a result, carriers have significant ability to negotiate preferential pricing as they can be responsible for a large percentage of an application's unit sales.

In addition to high negotiating leverage, wireless carriers are very price sensitive. This is a result of their business model which focuses on providing handsets to users at low or no cost and making reoccurring revenue from long-term monthly contracts. In order to do this, carriers generally subsidize the cost of the handset. As they place considerable pressure on smartphone OEMs to lower the cost of their handsets. Carriers

⁸ (Google 2008)

⁹ (Google 2008)

¹⁰ (Blackberry Storm Apps 2009)

¹¹ (Blackberry 2009)

¹² (Nokia 2008)

¹³ (Herrman 2009)

are likely to place the same pressure on smartphone application developers in order to decrease the up-front cost that must be subsidized.

2.1.3.4 Advertisers

For competitors that use a free and ad-supported strategy, advertisers are an important buyer. Advertisers have high negotiating leverage primarily because there are few switching costs incurred to change vendors. All the advertiser needs to do is supply their advertisement to the new vendor. Many advertisers simultaneously work with a number of different industry competitors and with other media formats such as television or radio.

Advertisers are price sensitive because the cost of running advertisements represents a significant percentage of their overall costs. While pricing fluctuates, anecdotally the current cost per thousand impressions (CPM) is less than \$2.00USD. Application developers can decrease advertisers' price sensitivity and thus negotiate higher CPMs by targeting market segments that are desirable to advertisers. Desirable market segments generally include users who have high disposable incomes or are particularly susceptible to advertising. Therefore, market segment is a key success factor when using an ad-supported monetization model.

As indicated earlier, the average user will use a free application for less than one hour in total. Assuming average total usage is one hour and that one ad can be shown during each minute of usage, the average user would be worth a relatively small \$0.12 to a smartphone application developer. Consequently, order to build a sufficient revenue stream, application developers of free applications will need to build larger user-bases

with a high degree of ‘stickiness’. Therefore, large user-base and application stickiness are a key success factors when using an ad-supported monetization model.

2.1.3.5 Key Success Factors

Key success factors identified in this section include: market segmentation; switching costs; large user-base; application stickiness; and marketing to end-users. Application developers can reduce the negotiating power and price sensitivity of end users by targeting market segments where threat of end-users backwardly integrating is small, users are required to enter significant amounts of information into the application or prefer to customize the application, or application quality has a significant impact on the end user. Application developers can further increase end users’ switching costs by developing applications which learn about user behavior and preferences and adjust their functionality accordingly.

While application developers have few methods of reducing the power of wireless carriers and marketplaces, inducing pull-through effects by marketing to end users may be effective. If the application developer can create high end-user demand, both application marketplaces and carriers will have strong incentives to purchase the application. Additionally, developers should attempt to leverage the marketing power of marketplaces’ application ratings and top application lists as these appear to have a strong effect on end-user purchasing behavior.

For application developers using ad-supported monetization models, key success factors include: large user-base; application stickiness; and market segment. A large user-base and application stickiness increases the number of ad-impressions which in-

turn increases revenue. Targeting desirable market segments reduces advertisers' negotiating leverage.

2.1.4 Threat of Substitutes (high)

Porter defines a substitute as a product that “performs the same or a similar function as an industry’s product by a different means” (Porter 2008). Substitutes gain power if they have a high price/performance or the cost to switch to the substitute is low. Due to the diversity of functions that smartphone applications can perform, there is a wide range of substitutes including the internet; web applications; and netbooks and associated software. For LBS applications, guidebooks can be a substitute and for applications with news or entertainment content, newspapers, books, magazines, television and movies can be substitutes. Overall, the power of these substitutes is high.

Most smartphone platforms have a built-in web browser so the internet is a common substitute for smartphone applications. Most websites are free, however users require either wireless network (“WLAN”) access or a data plan in order to reach the internet. WLAN access is generally free however data plans are generally expensive as carriers seek to build new revenue streams from data in order to offset decreasing revenues from voice services. Data charges vary between countries but to give some perspective AT&T charges \$30/month for unlimited data in the US and in Rogers charges \$30/month for 6gb of data in Canada. From a performance perspective, the internet contains a much wider variety of content than a smartphone application. However, most users find it difficult to quickly locate content of interest. The biggest disadvantage of the internet is that it is typically slow and less responsive than a smartphone application, due mainly to the limited processor and network speed of most smartphone handsets.

Additionally, most websites are not optimized for the smaller screen size of most smartphone handsets.

Using the built-in browser, users can also use web applications. Examples of popular web applications include Google gMail, Google Docs and ‘Remember The Milk’, an online task list manager. Most web applications are free; however, as with the general internet, users still require WLAN access or a data plan. Web applications generally have a greater range of functionality than smartphone applications. Another advantage is that data input into the application is stored online. This eliminates the need for synchronization and allows PCs and other devices with web browsers to access the data. Like web sites, performance of web applications is generally slower as most web applications are not optimized for the limited processor power and screen size of smartphone handsets. Additionally, due to security considerations, web applications are generally unable to access handset hardware, such as the camera or GPS, or data stored on the handset.

Netbooks and their associated software are another potential substitute for smartphone applications. A netbook is effectively a notebook PC with a smaller screen size and less powerful processor. A survey of netbook prices on newegg.com, an online electronics retailer located in the US, reveals that netbook prices range between \$279.99 and \$1,499.99 with an average of \$467 which is similar to the price of a high-end smartphone. Netbooks’ main advantage is that in most cases they can run the same software as a desktop or notebook PC. Additionally, netbook software has greater performance as it can take advantage of netbooks’ larger screen sizes and faster processors. The biggest disadvantage of a netbook and associated software is that

netbooks are larger, and therefore less portable, than a smartphone. Netbooks also have lower battery life and are usually unable to access the internet when out of range of a wireless network.

Guidebooks and the internet are the most common substitutes for smartphone LBS applications. The price of guidebooks varies considerably depending on quality and coverage, however most guidebooks retail for under \$50. The main advantage of a guidebook is that the page size is larger than a smartphone screen, making it easier to read. Additionally, guidebooks are readable in direct sunlight and do not require battery charging. The largest disadvantage of a guidebook is that it is difficult to search to find relevant information. Additionally, guidebooks cannot be customized, are less portable and are more expensive than most online sources of information.

For smartphone applications that focus on access to news and entertainment, substitutes include newspapers, books, magazines, and television shows and movies adapted for mobile devices. Table 4 (below) provides a comparison of the average hourly cost of these substitutes. As shown, the price varies from \$0.99/hr for books up to \$6.97/hr for new-release movies available from the iTunes store. Novels, newspapers and magazines share the same advantages and disadvantages as guidebooks. The main benefit of movies and television shows adapted for mobile devices is that the production quality is generally much higher than that of equivalent smartphone applications. This is primarily because movies and television shows benefit from much larger production budgets. The biggest disadvantage of mobile movies and television shows is that their quality is somewhat degraded by the limited screen size and audio capabilities of most

mobile devices. Additionally, movies and television shows are not interactive and therefore do not make use of the various input capabilities available on mobile devices.

Substitute	Average Length	Price (USD)	Price/Hr (USD)
Movies (iTunes)	129 minutes ¹⁴	\$4.99 - \$14.99	\$2.32 - \$6.97
Television (iTunes)	25 minutes	\$1.99	\$4.78
Paperback Novel	70,000 words ¹⁵ @ 200 wpm ¹⁶ = 350 minutes	\$5.78 ¹⁷	\$0.99
Newspaper (Wall Street Journal)	56 pages ¹⁸ @ 1 page per minute = 56 minutes	\$1.50 ¹⁹	\$1.61
Magazine (Sports Illustrated)	218 pages ²⁰ @ 2 pages per minute = 109 minutes	\$4.99	\$2.74

Table 4 - News and Entertainment Substitutes

The switching costs of the identified substitutes are generally very low, apart from the up-front cost of purchasing the substitute (assuming it isn't free). The switching cost for internet sites and web applications can be higher if they gather significant amounts of information from the end user. Re-entering large amounts of information into a mobile application can take a significant amount of time, increasing the switching cost to the application. On the other hand, if the application gathers significant amount of user data, the cost of switching to an internet site or web application can also be high.

¹⁴ (My Future Self 2008)

¹⁵ (Masterson 2002)

¹⁶ (readingsoft.com 2009)

¹⁷ (Dreher 2002)

¹⁸ (Seelye 2006)

¹⁹ (Associated Press 2007)

²⁰ (Messner and Connell 2007, 173)

2.1.4.1 Key Success Factors

Key success factors identified in this section are: application performance; application content; and switching costs. Better application performance, in terms of speed and responsiveness, will help differentiate developers' applications from the internet and web application. A wide range of application content, in particular the ability to easily search the content, will help differentiate applications from non-electronic products such as newspapers, books, magazines, television and movies. It may also be beneficial to include audio-visual content in applications to help compete with mobile television and movies. Finally, increasing costs to switch from the applications will provide an impediment for users to select substitutes. Decreasing the cost to switch to the application will also encourage users to switch away from substitutes.

2.1.5 Rivalry among Existing Competitors (high)

Porter defines the rivalry among existing competitors as the degree to which competition amongst competitors drives down profitability in the industry (Porter, Competitive Strategy 1980). High rivalry results from a combination of intensity of competition and competition on a price basis. Strength of rivalry in the mobile applications industry is high.

Intensity of competition varies between platforms. However, some common factors across all platforms include slow industry growth and competitors that have similar size and power. Industry growth is slow because the number of applications on all platforms is growing much faster than the number of users. Most application developers are relatively new to the industry and have not yet had time to grow. Additionally, most application developers have only had one 'blockbuster' application (if

any). Combined with the short application life-cycle, this places a limit on the profits that successful developers are able to reinvest in order to grow their business.

Developers targeting the iPhone platform currently experience a high degree of competition intensity. There are currently over 65-thousand applications on the iPhone platform with many applications competing in each category and sub-category. This is well illustrated by the task-list application example given earlier.

In the longer term it seems likely that intensity will decrease as unsuccessful developers exit the industry. This is likely as adMob reports that more than half of all current iPhone applications have less than 1,000 active users (admob 2009). Combined with an average application download price of \$2.65 and relatively low user attention span, this means that many applications are likely unprofitable.

Price competition is high because applications are generally similar in functionality and have low switching costs. However, in some cases applications are able to achieve higher prices due to a greater degree of differentiation, such as the Appigo 'to do' application shown in the task-list example. Switching costs are also higher for applications that collect data on user behavior or preferences or require the user to input a large amount of data.

2.1.5.1 Key Success Factors

Key success factors identified in this section are: market segment; and switching costs. By selecting a market segment that includes fewer competitors, or that is growing faster than the rest of the industry, developers can reduce the intensity of competition.

Developers can also increase switching costs to reduce the possibility of price competition eroding their profits.

2.2 Industry Attractiveness

Overall industry attractiveness is low, primarily because all of the industry forces are high in power. However, supplier power is decreasing as more programmers, attracted by high salaries, enter the industry. Application prices are low for three main reasons. First, even though the major substitutes have lower performance, their low price puts a cap on application prices. Second, high rivalry coupled with high threat of entry has resulted in many competing applications in most market niches. This results in end-users gaining considerable negotiating power. End-users negotiating leverage is also increased by developer reliance on application marketplaces which reduce search costs.

The result of these industry forces on application profitability is significant. Taking iPhone applications as an example, the average iPhone application price is currently \$2.65. High competition for downloads means that the average application is downloaded less than 2,000 times. Admob statistics show that fewer than 5% of applications have more than 100,000 users. As a result, most iPhone applications will fail to build a significant revenue stream from application purchases. Free applications using an ad-supported monetization strategy have to contend with low end-user attention spans resulting in most applications being used for less than one hour in total. This severely constrains the number of ad impressions per user and when coupled with the low average number of users, results in low revenue.

2.3 Key Success Factors

Throughout the industry analysis, ten key success factors (KSFs) have been identified. The factors, forces they apply to and their relative importance is summarized in Table 5 (below). The relative importance of each KSF is calculated by counting the number of forces that KSF affects.

Key Success Factor	Forces Affected					Importance
	Threat of Entry	Power of Suppliers	Power of Buyers	Threat of Substitutes	Rivalry	
Switching Costs	✓		✓	✓	✓	4
Market Segment			✓		✓	2
Network Effects	✓					1
Supply-side Economies of Scale	✓					1
Learning Curve	✓					1
End-User Marketing			✓			1
Application performance				✓		1
Application content				✓		1
Large User-base			✓			1
Application Stickiness			✓			1

Table 5 - Key Success Factors

The Switching costs KSF affects four out of the five of the industry forces. First, it creates a barrier to entry by making it difficult for users to switch to a new entrant's application. Secondly, it increases the time and effort to switch to a substitute. Third it reduces buyer negotiating power as it is more difficult for buyers to switch between rival products. Finally, high switching costs reduce the threat of price competition with rivals.

The market segment KSF reduces both buyer power and rivalry. Choosing market segments where application quality is important to the end user reduces buyer price sensitivity. Additionally, choosing market segments with fewer competitors or platforms with fewer applications but a large number of users or high growth reduces the intensity of competition. Finally, choosing a market segment that is desirable to advertisers (i.e., because the segment has a higher disposable income or is more susceptible to advertising) decreases the negotiating leverage of advertisers.

Creating network effects creates a large barrier to entry, reducing the threat of new entrants. New entrants into the industry would need to match the size of the company's network or have a significant cost or quality advantages in order to induce customers to switch. This generally means that new entrants will require large amounts of capital with which to build a superior product or sustain losses while building their network.

The supply side economies of scale KSF involves leveraging business size to create specialized teams. Specialization allows teams to create high quality applications in less time and with fewer defects. Fewer defects reduce overall development costs as the time to find and fix software bugs can be significant. Use of specialization forces new entrants to outlay significant amounts of money up front to build the same kind of application quality.

The learning curve KSF involves utilizing information collected from experience in the industry to increase application quality or lower development costs. Without the benefit of this information, new entrants will find it more difficult to compete with

industry incumbents. As a result, incumbents generally have an advantage until new competitors are able to move up the learning curve.

The next two KSFs are end-user marketing and application performance. End user marketing allows the organization to reduce the negotiating power of wireless carriers and application marketplaces by creating pull-through from the end user. Application performance refers to increasing application speed and responsiveness in order to achieve performance advantages over substitutes such as the internet or web applications.

The application content KSF involves increasing the quality and quantity of application content. This improves the application's position compared to substitutes such as newspapers, books and magazines. This is particularly effective when the application is able to update its content regularly using the internet.

For companies using a free, ad-supported monetization model, there are two additional key success factors: large user-base and application stickiness. A large user-base and high application stickiness increases the number of ad impressions that the application can deliver. Therefore, both KSFs directly impact the ability of the application to build large revenue streams.

2.4 Competitive Analysis

There are currently few competitors operating in the smartphone application sustainability niche. None of the competitors' applications have LBS functionality; however all of the applications overlap with 3rdWhale's content and proposed future functionality. The competitors chosen for this analysis are: Greenopia; Big in Japan; and

T-Mobile. These competitors are chosen because they are the largest with current or proposed applications in the sustainability niche.

Greenopia is an online sustainable business listing operator founded in 2005. The company currently has less than 4,000 businesses in its database and is geographically limited to Los Angeles, New York and San Francisco; however, it has plans to expand to 20 other major cities in the US. Greenopia launched a free iPhone LBS application in April 2009. The application is currently limited to sustainable businesses in the Los Angeles area however it will likely expand in coverage as Greenopia grows. Greenopia's most likely strategy is to use a free, ad-supported monetization model similar to what it currently uses on its website.

Big in Japan is a smartphone application developer located in Texas, USA. The company is relatively large compared to most application developers, with 29 employees listed on their website. The company is the publisher of the ShopSavvy application for the Android platform. They have recently announced plans to bring ShopSavvy to the iPhone platform as well as develop a sustainability application called 'EcoHero' for both the Android and iPhone platforms. Based on details from Big in Japan's website and a publicly available presentation on slideshare, EcoHero will include the following functionality: a barcode scanner which will allow users to obtain sustainability information about products; food analyzer; eco-encyclopedia; carbon calculator; nutrition and exercise tool; and task manager (Muse 2009). EcoHero is notable because it is being sponsored by Adrian Grenier, of Entourage and AlterEco fame. This will likely help in marketing efforts as Adrian has access to a wide array of media outlets. It is difficult to project Big in Japan's strategy for EcoHero as the application has not yet been released.

However, if ShopSavvy is an indication of Big in Japan's preferred model then it is likely that EcoHero will be free.

The final competitor is T-Mobile, a wireless carrier located in the US. T-Mobile has the largest size amongst of 3rdWhale's potential competitors and likely has access to a wide array of development resources. The company recently announced availability of its Green Perks application, a smartphone application that provides users access with coupons for sustainable businesses (T-Mobile 2009). Green Perks is currently available for free. This is likely because T-Mobile is able to charge for the SMS messages and wireless data service that the application uses to retrieve coupons.

Table 6 (below) provides a comparison of each of the three competitors on each of the key success factors identified as part of the industry analysis. The total score for each competitor is calculated by taking the sum of the product of each of the competitor's KSF rating and the relative importance of that KSF. The leading competitor(s) on each KSF are highlighted, except in the case of switching costs where there is no leader.

Key Success Factor	Importance	Competitor			
		3rdWhale	Big In Japan	T-Mobile	Greenopia
Switching Costs	4	1	1	1	1
Market Segment	3	5	4	4	2 ²¹
Network Effects	1	1 ²²	3	3	3
Supply-side Economies of Scale	1	3	5 ²³	4	2
Learning Curve	1	4	4	3	2 ²⁴
End-User Marketing	1	3	4	4	2
Application performance	1	3	4 ²⁵	3	3
Application content	1	4	4	2	3
Large User-Base	1	1	1	1	1
Application stickiness	1	3	4	1	1
Total		41	45	37	27

Table 6 - Key Success Factor Comparison

2.5 Opportunities and Threats

2.5.1 Opportunities

Switching costs is one of the most important key success factors. However, none of the current competitors are using business models or incorporating application features that increase switching costs. This results in an opportunity for 3rdWhale to be the first to build switching costs into its application and business model to protect itself from new entrants and price competition with existing industry players. Additionally, increasing the cost to switch from the application and decreasing the cost to switch to the application will improve the company's position with respect to substitutes.

²¹ Low because Greenopia targets LOHAS iPhone users in Los Angeles – a very small market segment.

²² 3rdWhale is low because it has a paid application and its competitors have free application. Free applications generally get an order of magnitude more downloads so have an advantage in reaching critical mass.

²³ Big In Japan has a large development team with experience developing mobile applications.

²⁴ The Greenopia iPhone application is Greenopia's first mobile application and it is relatively new.

²⁵ Big In Japan has application development experience so will likely build a high quality application.

The second opportunity is market segment. 3rdWhale is currently the only competitor that targets three platforms (Android, Blackberry and iPhone). Both Android and Blackberry have few applications. Android has high predicted growth in users and Blackberry has a large existing user-base. Targeting the Android and Blackberry market segments will reduce the intensity of competition and at the same time increase the size of 3rdWhale's market segment. The larger market segment is more likely to be able to sustain an ongoing business.

Of the three main competitors, 3rdWhale has had an application in the market the longest. This gives the company a learning curve advantage as it has had longer to collect information about user preferences and behavior. By utilizing this information, the company will have an advantage in improving software quality which should lower defects, reducing development costs and time-to-market for new software versions.

3rdWhale's strategy of partnering with other organizations in the sustainability sector has provided the company with access to a wide range of application content. For example, the partnership with GenGreen will expand the number of businesses listed on 3rdWhale's smartphone software by 50,000 to 60,000²⁶. Current proposed partnerships with other organizations are likely to further increase business listings and access to sustainability content.

2.5.2 Threats

3rdWhale's largest threat is that other competitors will reach critical mass first and thus gain the benefits of network effects. This is because all of the company's

²⁶ This is less than the 60,000 businesses in GenGreen's database due to duplicates of businesses that are already in 3rdWhale's database.

competitors make their applications available for free. Free smartphone applications are generally downloaded 10-40 times more than paid applications, meaning that competitors are able to grow their user-base much more rapidly.

Two of 3rdWhale's three main competitors are in a better position to leverage supply side economies of scale. At approximately 29 employees, Big in Japan has a much larger team. As an established wireless carrier, T-Mobile has the resources to employ specialist teams as well as industry experts. Consequently, both of these companies are in a better position to produce higher quality software than 3rdWhale. One potentially mitigating factor is that neither of these competitors have specific expertise in the sustainability segment. However, both could conceivably hire experts in this field.

The same two competitors (Big in Japan and T-Mobile) also have an advantage in marketing to the end-user. Big in Japan's marketing advantage comes from its association with Adrian Grenier. Adrian's ability to access a wide range of media gives the company an advantage in marketing to a wider range of potential users than 3rdWhale. T-Mobile has the ability to leverage its extensive resources and existing marketing channels to reach both a sustainability and mainstream audience. This works very well in conjunction with T-Mobile's application which is appealing to a much wider market segment than just sustainability-interested users.

Application performance is a threat because 3rdWhale's application suffers from having been through two outsourced development teams before being brought in-house. From examination of the code, it appears that neither of the two outsourced teams had experience developing mobile applications or even good software engineering skills. As

a result, there are many bugs that design defects that persist in the application and are expensive and time consuming to fix. Both Big in Japan and T-Mobile have extensive experience with mobile applications and are much more likely to produce software that is higher quality, and hence better performing, than 3rdWhale's current application.

If 3rdWhale adopts a free, ad-supported monetization model, large user-base is a threat. None of 3rdWhale's competitors have a large user-base, primarily because all of the companies are recent entries into the industry. However, at approximately 5,000 users, 3rdWhale's user-base is small and currently growing very slowly. The competing applications are free, or likely to be free, and therefore are likely to grow their user-base very quickly.

Finally, application stickiness is a threat because, compared to the proposed functionality for EcoHero, 3rdWhale's application currently has few features that would compel users to return on a daily basis. This limits the range of monetization strategies that the company can use. For example, if users do not return to the application frequently, it will be difficult to build a large revenue stream from advertising.

2.6 Strategic Alternatives

2.6.1 Alternative 1 – Paid monetization model and expanded market segment

The first alternative is to keep the current up-front payment monetization model and expand the target market segment. 3rdWhale currently targets smartphone users who are interested in sustainability. By leveraging its ability to build relationships with content providers, the company could introduce content that appeals to customers in adjacent market segments that overlap slightly with the sustainability segment. For

example, health-conscious consumers may be interested in green and sustainable supermarkets because these markets have a reputation for selling healthier food.

This strategy is very similar to Nintendo's Wii strategy, where the company targets consumers who are not 'hardcore' gamers but could be interested in games. The key to using this strategy is to concentrate on making the application extremely user-friendly and the content appealing to a wide range of customers. By doing this, Nintendo dramatically increased the size of its target market and avoided direct competition with Sony and Microsoft who both had arguably superior hardware (O'Brien 2007).

One method of improving user friendliness is to have the application automatically customize itself based on information gathered about user behavior and preferences. An excellent example of this in software is in Microsoft Windows, where the programs listed on the first level of the 'start' menu adjust their position based on frequency of use. In 3rdWhale's case, this could take the form of automated content customization based on the articles that the user selects to read. Automatic customization also increases switching costs as substitutes, rival applications and new entrant's applications will take time to learn about user behavior and match 3rdWhale's ease of use.

Adoption of this strategy would require the company to change its marketing strategy from push to pull. Instead of marketing to sustainability interested customers, 3rdWhale would market to customers who could benefit from the application but don't yet know it. Adopting a pull marketing strategy would also improve the company's strategic fit with its differentiation (focus) strategy.

Monetization of the application would be through up-front payment, use of coupons and business intelligence. Up-front payment means charging the user for the application at the time of download. The main benefit of this monetization model is that revenue is received sooner and is not dependent on the customer using the application.

Monetization using coupons involves creation of an interface for businesses to create coupons and adding functionality to the mobile application to allow users to receive or find coupons based on their current location. Businesses would pay for either coupon impressions or redemptions. The impression model involves charging businesses for the number of impressions or 'views' of their coupon. The redemption model involves charging businesses for each coupon that is actually used. Businesses are generally willing to pay more per redemption as a redemption means that the customer is present in the store and making a purchase. Unfortunately, redemption tracking involves development of a technical solution to eliminate the possibility of redemption fraud.

Business intelligence involves collection of a range of user data including: user location; what the user was searching for; and what time they were searching. This data can then be aggregated in order to provide useful statistics to businesses. For example, if one-hundred users at a specific location frequently search for sustainable restaurants between the hours of 11:00am and 1:00pm then this would be extremely valuable information on consumer demand for a restaurant catering to the sustainability segment. Business intelligence is most valuable if the application has a large number of users so achieving a large number of downloads via network effects and viral marketing becomes important.

In order to fund operations until a significant revenue stream is achieved, 3rdWhale will likely require additional capital. It is unlikely that this strategy would allow the company to obtain debt financing as it does not result in significant revenue in the short-term and the company does not have significant collateral. Therefore, the company should focus on obtaining further angel or venture-capital investment.

2.6.2 Alternative 2 – Free monetization model and network effects

The second alternative addresses the network effects threat by reverting to a free monetization model and leveraging the effect of viral marketing. Reverting to a free model removes a significant barrier to new users downloading the application and increases the company's chance of reaching critical mass before its competitors. Achieving network effects is also likely to increase the size of 3rdWhale's user-base and so addresses the large user-base threat.

At first glance this appears to be a shift to a low-cost strategy. However, the costs of a free application generally shift from the end-user to the advertiser. The aim of a differentiated strategy combined with a free application is to achieve high application quality in order to demand high advertising prices.

In conjunction with the switch to a free application, the company should focus its marketing and development efforts on achieving viral spread of the application. This will improve the applications' chances of entering the top application listings in their respective marketplaces. The increased exposure should then result in further acceleration of downloads.

In order to maximize the chances of viral spread, the 3rdWhale would include more ‘gimmick’ or game-like functionality in the application. The company would leverage its learning curve advantage in understanding of smartphone users in order to maximize the chances that users would refer new users to the application. Analytics data from the application would also be used to fine tune the application features to maximize viral uptake. As well as application changes, the company would focus its marketing efforts on social media such as Facebook, YouTube and Twitter in order to create end-user demand for the application.

Monetization of the application would be through advertising, coupons and business intelligence. Advertising would involve placing graphical ads in the stream of content delivered to the user. In order to improve the application stickiness, 3rdWhale would leverage its partnerships with sustainable businesses to provide a constant stream of new content. Application analytics could be used to tune the content in order to enhance the time that the user spends with the application. The coupon and business intelligence models are discussed in the previous section.

As with the first strategy, this strategy would require additional funding. As discussed in the preceding section, 3rdWhale is unlikely to be able to obtain significant debt-financing. Therefore, the company should focus on obtaining angel or venture-capital investment.

2.6.3 Alternative 3 – Smartphone software services

In the third strategic alternative, the company would exit the smartphone application development industry and become a software services supplier to the industry. This alternative addresses the possibility that the business is unsustainable

because either: a) the market niche is too small, b) there is not enough demand for the company's product or c) that the industry itself is unattractive due to four of the five industry forces being high. It is possible that this is the case because, despite the company's positive coverage in sustainable media and lack of direct competitors, downloads of the application are small compared to downloads of successful smartphone applications.

In the short-term, 3rdWhale would offer software development services to other organizations in the sustainability space. In this area, the company could leverage its current learning curve advantages including: application development experience; data about smartphone user preferences and behavior gained from its current applications. Additionally, 3rdWhale could leverage its established partnerships with sustainable businesses to find sales opportunities.

In the long term, the company would use its experience developing successful applications to widen its target market. Additionally, the company could develop a client-server mobile applications platform. Such a platform would take advantages of common elements of mobile application design such as scalable server-side software, offline operation and low-bandwidth, low latency communications protocols. This should provide two main benefits. First is that it will lower the costs of developing applications for other organizations. Secondly it will become a valuable piece of intellectual property.

In order to share in the success of 'blockbuster' mobile applications that the company develops, 3rdWhale would use a mixture of fixed-cost and revenue sharing contracts. One possibility is that the company charges only development costs and takes

a fixed percentage of the application revenue or profits. This lowers the financial risk to the company. Additionally this will lower the amount of interim funding required as contract revenue will cover some portion of 3rdWhale's fixed costs.

3: Implementation/Internal Analysis

This section analyzes the linkage between each of the three proposed strategies and 3rdWhale's management preferences, organization and resources. For each internal capability, the company's current position will be identified. The required position for each strategy will be compared against the current position to identify any gaps. If the gap is addressable then a suggested implementation will be provided along with a projected cost and benefit. If there is no viable strategy to address the gap then the strategy will be discarded.

3.1 Management Preferences

Management preferences include preferences resulting from personal or professional values, professional experience and individual leadership style. Management preferences also reflect decision criteria such as business goals or company vision. This area is examined first because strategies that are not aligned with management preference are unlikely to be implemented.

3.1.1 Current position

Management has a strong personal preference for strategies that target sustainability-interested consumers. Additionally, management prefers to deal with sustainability-aligned organizations. This is particularly the case when dealing with suppliers – for example, 3rdwhale is currently in the process of searching for a more sustainable web hosting company.

In terms of decision criteria, the current directors, Ron and Boyd, would like to exit the business in 3-5 years by way of private acquisition or IPO. At time of exit, they would like the business to be valued at \$20-million or more. At 30% net margin, which is not unreasonable for a high-tech venture, and a conservative price earnings (P/E) ratio of ten, the selected strategy would need to produce annual revenues of \$6.6-million by year five at the latest.

The management team has a wide variety of academic and professional experience. Ron Williams has considerable experience in publishing, particularly newspapers and magazines. Boyd Cohen has a bachelor's and master's degree in human resources as well as a PhD in strategy, entrepreneurship and sustainability. Boyd has worked as a consultant, an assistant professor at SFU and president of a Vancouver based software start-up specializing in business sustainability software. Marn-Yee Lee has a Bachelor's degree in computer science and an MBA specializing in sustainability. Marn-Yee has extensive experience with enterprise software development.

The management team appears to be willing delegate authority and tasks. However, due to the relative inexperience of the programming team, Marn-Yee prefers to keep tighter control of the junior programmers. Boyd and Ron have divided control such that Boyd is responsible for the application development and Ron is responsible for the website and business database.

3.1.2 Strategy 1 - Paid monetization model and expanded market segment

This strategy requires management to accept broadening the target market segment to include potential sustainability-interested customers. This is problematic because there are philosophical differences between core sustainability consumers and

those on the fringe of this segment. For example, core sustainability consumers may not consider some businesses to be very 'green' and would get upset if they were included in 3rdWhale's business directory.

The suggested solution for this gap is to ensure that the application continues to meet the needs of the core sustainability market by allowing users to customize the content they receive on the application. Another method of achieving this is to have the application automatically customize itself based on user behavior. Automated customization should dramatically increase the usability and usefulness of the application.

It will likely take 1-2 weeks of development time to implement self-customization in the application. Implementing auto-customization may take 2-3 months as it will require considerable data gathering and analysis and development of a learning algorithm to perform the customization. Therefore, the company would first focus on implementing self-customization with auto-customization being developed after further funding is obtained.

The main benefit of this solution is that it will allow the application to effectively cater to a wider market segment. Additionally, automated customization should improve ease of use, making the application easy to switch to and more accessible to non-technical users. Finally, this solution should increase switching costs which will better position 3rdWhale against its competitors and new entrants, as well as decreasing buyer bargaining power.

3.1.3 Strategy 2 - Free monetization model and network effects

This strategy requires management to change its focus from a content-rich application to more of a game/gimmick type application. There are two main problems with this. The first is that this focus reduces the sustainability message in the application and therefore conflicts with management's sustainability preference. The second is that while management has experience with conservative content-driven strategies, it has little experience with game software. As a result, this strategy does not fit with management preferences and experience and is discarded for the purposes of this analysis.

3.1.4 Strategy 3 - Smartphone software services

This strategy does not meet management's desire to exit in 3-5 years with a business valuation of \$20-million or more. This is because services strategies scale slowly and take time to generate large revenues. It appears unlikely that there is enough mobile application development demand to build the required \$6-million/year revenue stream. As a result, this strategy does not meet management decision criteria and is discarded for the purposes of this analysis.

3.2 Organization

Organizational capabilities include the organization's structure (centralized or decentralized), systems and culture. Structural and systems issues can take significant resources to fix but are not insurmountable. Organizational culture is much more difficult to change and can frequently result in the failure of strategies that are not aligned with organizational culture.

3.2.1 Current position

As indicated in the company overview, 3rdWhale trends slightly more towards a decentralized organizational structure. This is at least partly driven by necessity as the junior software developers do not yet have the required skills and experience to allow a high degree of autonomy. As a result, further decentralization will require significant improvement in the software developers' ability.

As a relatively small start-up, 3rdWhale has few established organizational systems. One exception to this is development support systems where the company has established software version control, bug tracking and knowledge capture/sharing systems. An important system that is currently missing is quality assurance. The company currently has no defined software release process and performs no formalized or automated testing.

3rdWhale's culture is that of a small start-up. Additionally, the development team has a product development culture. This means that the programmers think more in terms of end-user needs and application features than about software requirements and formalized Q&A and acceptance testing.

3.2.2 Strategy 1 - Paid monetization model and expanded market segment

3.2.2.1 Gap 1 – Organizational Structure

This strategy requires a high degree of differentiation and therefore more decentralization. Unfortunately, it is difficult to increase decentralization and autonomy with the current group of junior programmers. As stated earlier, this is mainly because

the current programmers do not have sufficient experience for management to safely allow them a high degree of autonomy.

The suggested solution is to hire 1-2 full-time, senior smartphone application developers. This will likely cost in the order of \$80,000 - \$110,000 per-annum for each programmer. To reduce this cost, 3rdWhale could leverage its start-up status to offer programmers a mix of cash and equity compensation. Additionally, the company could attempt to find sustainability values-aligned individuals who may be prepared to work for less in order to work for a sustainability focused organization.

There are two main benefits to this solution. First, it improves the overall skill of the workforce. This allows a more decentralized structure and therefore more autonomy in decision making – resulting in improved overall strategic fit. Second, more experienced developers will improve application quality and accelerate development of new features.

3.2.2.2 Gap 2 – Quality Assurance System

3rdWhale currently has no defined quality assurance system. This is having a significant impact on application quality, as indicated by recent issues such as the disappearance of business entries from the production database. Poor application quality is problematic because this strategy requires a high level of application usability and therefore high application quality.

The suggested solution is, after hiring more experienced developers, to have the junior developers spend some percentage of their time on quality assurance tasks such as testing. The cost of this solution is nothing beyond the continued employment of the

junior developers. The main benefit of this solution is increased application quality due to bugs being found in testing rather than by the end-user. This solution also has a positive impact on the junior developer's professional development as it allows them to gain a better understanding of software quality assurance.

3.3 Resources

Organizational resources include: operational resources such as the property, plant and equipment; human resources; and financial resources. There are limited operational resources required in the smartphone applications industry. Gaps in human resources can be addressed by appropriate hiring. Financial issues can be more problematic as they generally require selling fixed assets (of which, 3rdWhale has few), reducing costs or seeking further investment.

3.3.1 Current position

3rdWhale currently has office space in the SFU TIME New Ventures incubator. The office space can accommodate a maximum of eight employees. The company also has access to a medium meeting room at the incubator that can seat approximately 10-16 people.

As indicated in the company overview, 3rdWhale has eight employees. The management team includes two directors and one VP technology. Marketing is primary conducted by the social media strategist. Finally, the development team has three junior software developers and one senior software developer.

3rdWhale is currently completely equity funded. With its current cash utilization rate, the company has a less than 4-month runway. 3rdWhale has little chance of

obtaining debt financing as it has no significant cash flow with which to cover interest costs and no real assets for use as collateral.

3.3.2 Strategy 1 - Paid monetization model and expanded market segment

3.3.2.1 Gap 1 – Marketing Team

This strategy requires a ‘pull’ marketing strategy. 3rdWhale will need to reach a wider customer segment and convince them of the value of using the application. The suggested solution is to hire a general-purpose marketing manager or to engage an external marketing company. The cost of a marketing manager is likely to be between \$50,000 and \$80,000 per annum. The cost of hiring a marketing company is variable but likely to exceed the cost of a marketing manager. This solution further improves the company’s strategic fit with its differentiation strategy.

3.3.2.2 Gap 2 – Office space

The company does not have enough office space for the recommended new hires (a marketing manager and two senior developers). The suggested solution is to recruit individuals who are able to work from home. As these individuals are expected to have a greater degree of autonomy, telecommuting should be acceptable at least in the near term. In situations where the entire team needs to meet, the conference room can be used for no additional cost. The cost of this solution is nothing as the company’s current development systems support telecommuting. The benefit of this solution is that the company would not have to increase its office size in the short-term.

3.3.2.3 Gap 3 – Financial Resources

As detailed above, this strategy will require hiring three new employees and extra development. The strategy does not result in an increase in short-term revenue with which to cover the cost of this. The suggested solution is that the company should seek additional angel or venture capital investment. Seeking additional investment will likely require management time in order to develop a business plan and talk to potential investors. The benefit of this solution is that it should result in the company obtaining the required amount of capital to implement this strategy.

3.4 Summary

Of the three proposed strategies, only strategy one – “paid monetization model and expanded market segment” meets management preferences. There are several gaps between 3rdWhale’s internal capabilities and those required to implement the strategy. However, possible solutions for all of these gaps have been identified, along with their associated costs and benefits.

4: Final Recommendation

This chapter provides a final recommendation on the strategic alternative. Additionally, recommendations are made on solutions to bridge the gaps between 3rdWhale's current internal capabilities and those required to implement the proposed strategy. Finally, a timeline for implementation of each of these solutions is provided.

4.1 Recommended Alternative

The recommended alternative is strategy one – “paid monetization model and expanded market segment”. This strategy involves retaining the existing paid monetization model and expanding the target market segment to include consumers on the edge of the sustainability segment. In order to continue to meet the needs of the core sustainability segment, it is recommended that the application be modified to allow the users to customize the content they receive. It is further recommended that the company focus on auto-customization functionality in the medium term.

The author recommends that 3rdWhale hire three new employees: two senior smartphone application developers and one marketing manager. The new hires would ideally be sustainability value-aligned and be willing to work for a mixture of cash and equity. Additionally, the new hires should be comfortable working from home, but and have enough mobility to attend team-meetings at the company's offices in the SFU TIME incubator.

It is further recommended that the existing junior programmers have some of their time allocated to quality assurance tasks such as testing. The quality assurance program would be overseen by a senior application developer or the VP of technology. Extra time spent on quality assurance should reduce the number of software issues seen by the end-user.

Finally, it is recommended that 3rdWhale seek further angel or VC investment. In order to maximize the chances of a successful investor partnership, the management team should focus on selection of sustainability-aligned investors. Additionally, the management team should begin development of an up to date business plan. Timeline for Implementation

4.2 Timeline for Implementation

Figure 13 (below) shows the recommended timeline for implementation. As shown, 3rdWhale should initially focus on achieving a first release of its Blackberry and Android applications. This should improve the company's ability to attract investors as it demonstrates that 3rdWhale is able to successfully build applications for a wide variety of platforms. At the same time, the management should create a business plan to show to potential investors and begin the search for a wider variety of content partners.

After releasing the applications for Blackberry and Android, the software development team should focus on content delivery and customization features. At this time, management would be talking to potential angel or VC investors. After investment has occurred, management would hire additional developer and marketing resources. Once the new hires have joined the company, the VP of technology would drive the

implementation of a QA system and have the junior developers transition partially to a QA role.

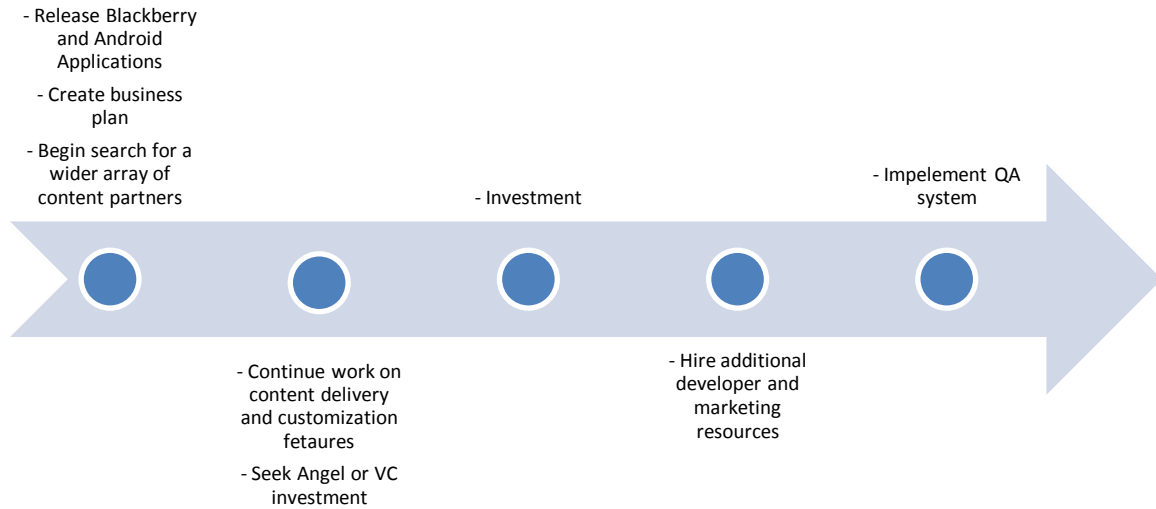


Figure 13 - Implementation Timeline

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